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Report to the Chairman, Subcommittee
on Public Lands, National Parks and
Forests, Committee on Energy and
Natural Resources, U.S. Senate

September 1994

FOREST SERVICE

Management of Reforestation Program Has Improved, but Problems Continue





United States
General Accounting Office
Washington, D.C. 20548

Resources, Community, and
Economic Development Division

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September 15, 1994

The Honorable Dale Bumpers
Chairman, Subcommittee on Public
Lands, National Parks and Forests
Committee on Energy and Natural
Resources
United States Senate

Dear Mr. Chairman:

In the 1930 Knutson-Vandenberg Act, the Congress attempted to sustain the nation's forests by establishing the Knutson-Vandenberg Trust Fund, which today totals more than \$800 million. This fund finances reforestation, improvement of timber stands, and improvement of other renewable resources in timber sale areas that have been harvested. The Forest Service, within the U.S. Department of Agriculture, annually collects about \$230 million from timber purchasers for reforestation and other activities and deposits it in the fund.

Concerned about the adequacy of the Forest Service's controls over the collection of and accounting for these funds and their use for appropriate projects, you asked us to review the Forest Service's management of the Knutson-Vandenberg fund. As agreed with your office, we will address this issue in two reports. This report describes (1) how the Forest Service plans, implements, and manages Knutson-Vandenberg projects and (2) what changes the Forest Service has made since 1990 in response to previous internal and Office of Inspector General reviews of the program and what additional changes may be necessary. We will report separately on the Forest Service's accounting and budgeting processes for reforestation, timber stand improvement, and other forest activities.

Results in Brief

Revenues from timber sales provide the funds for the Forest Service to reforest harvested lands, improve timber stands, and improve renewable resources—such as wildlife habitat, watersheds, and soils—in timber sale areas. The process of planning and implementing reforestation is lengthy and complex, and its management and oversight are decentralized. This process, which can span 15 years or more, is an integral part of timber sales, but it continues long after the timber is harvested. Over the past 5 fiscal years, the Forest Service's regions have spent about \$1.1 billion on

Knutson-Vandenberg projects and have reforested over 1.6 million acres using Knutson-Vandenberg funds.

Previous reports by Agriculture's Office of Inspector General and internal reports by the Forest Service identified problems with management of the Knutson-Vandenberg program involving, for example, (1) failing to provide the required documentation for selected projects funded by the Knutson-Vandenberg fund, (2) failing to ensure that projects were appropriate for Knutson-Vandenberg funding, or (3) failing to provide adequate training to staff on the Knutson-Vandenberg program. Since 1990, the Forest Service has taken several positive actions to correct these problems in program management. For example, in 1992 the Forest Service issued a consolidated Knutson-Vandenberg handbook that provides comprehensive guidance on managing the program and clarifies the types of projects that may be funded. This action appears to have significantly reduced the number of inappropriate projects being funded by the program. However, some problems, such as inadequate documentation in files and insufficient training of staff, remain.

Background

The Knutson-Vandenberg (K-V) Act of 1930 (16 U.S.C. 576-576b) established a constant source of funding for the Forest Service to reforest harvested lands. The act allows portions of receipts from timber sales to be put in the K-V Trust Fund. In 1976, the Congress, in enacting the National Forest Management Act (16 U.S.C. 1600 et seq.), expanded the approved use of K-V funds to include the protection and improvement of nontimber resources, such as fish, wildlife habitat, and outdoor recreation.

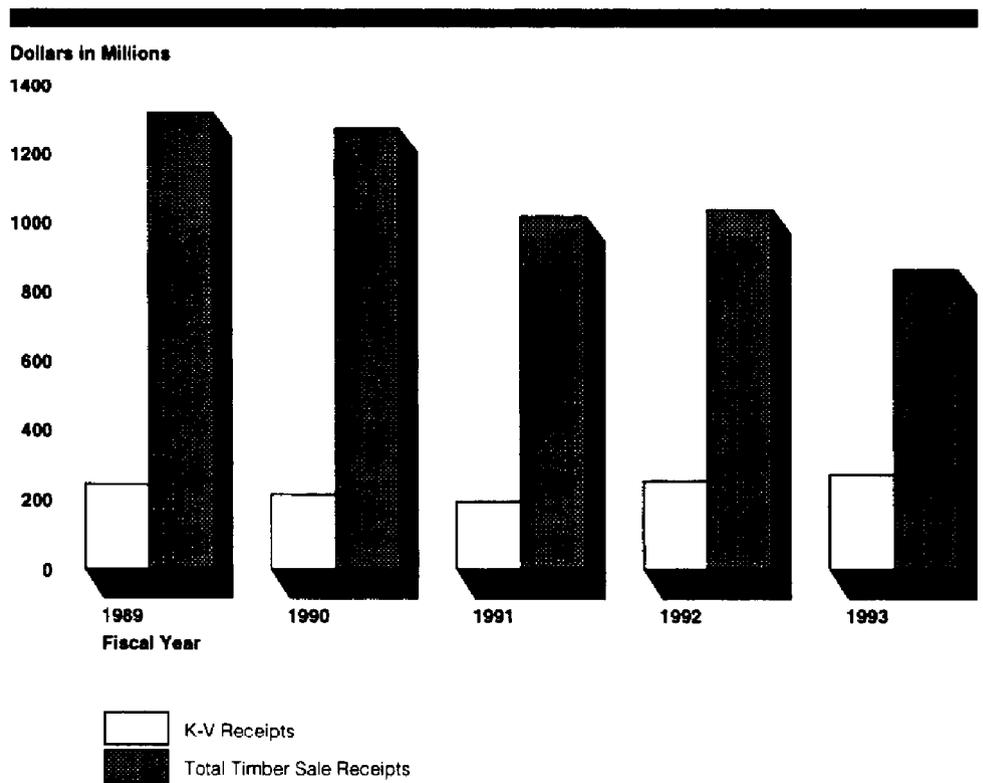
Reforestation is needed where timber harvests or natural disasters have depleted existing timber stands. Reforestation projects eligible for K-V funding include growing trees for planting, planting trees, sowing seeds, removing weeds and other competing vegetation, and preventing animals from damaging new trees. On average, since fiscal year 1989, the Forest Service has annually reforested about 480,000 acres. Over the past 5 fiscal years, the number of acres reforested ranged from a low of about 452,000 acres in 1993 to a high of about 498,000 acres in 1990.

The K-V fund is one of three sources of funds for reforestation; the other two are appropriations and the Reforestation Trust Fund. The K-V fund is also one of several trust funds that the Forest Service uses in managing national forests, and some of these trust funds may receive a portion of the receipts collected from timber sales. In fiscal year 1993, the Forest Service

received over \$864 million in timber sale receipts and awarded over 255,000 timber sales contracts. Of the \$864 million, over \$269 million was deposited in the K-V fund. The K-V fund supplied 66 percent of the money used in fiscal year 1993 to reforest Forest Service lands.

In fiscal years 1989-93, the Forest Service awarded over 1.3 million timber sales contracts, selling over 33 billion board feet of timber.¹ Over the 5-year period, receipts from timber sales totaled approximately \$5.5 billion, and almost \$1.2 billion was deposited in the K-V fund. Figure 1 shows, for fiscal years 1989-93, the total receipts and amounts deposited in the K-V fund (K-V receipts) from the timber sales.

Figure 1: Comparison of National Timber Sale Receipts With K-V Receipts, Fiscal Years 1989-93



Source: Forest Service.

¹A board foot, a standard measure of timber, equals the amount of wood in an unfinished board 1 inch thick, 12 inches long, and 12 inches wide.

A more detailed schedule of receipts, by Forest Service region, is presented in appendix I.

Planning and Implementing K-V Projects Is Lengthy and Complex, and Its Management and Oversight Are Decentralized

Reforestation starts with a lengthy planning phase closely linked to the timber sale process, followed by years of implementation. The entire process may take more than 15 years. In implementing K-V projects, the Forest Service's district officials are guided by numerous policies and procedures developed and monitored by successively higher organizational levels.

K-V Management and Oversight Are Decentralized

The Forest Service's oversight and management of the K-V fund and program are decentralized. Forest Service headquarters (Washington Office) and nine regional offices primarily establish policy and provide technical direction to the 122 forest offices² on various aspects of the K-V program. The forest offices, in turn, provide general oversight to 632 district offices and help the districts plan K-V projects. The district ranger is ultimately responsible for overseeing the planning and implementing of K-V projects. Thus, the district offices implement K-V projects in the field.

Overall oversight and responsibility for the K-V program rest with the deputy chief of the National Forest System, and the regional foresters and forest supervisors. However, at each level, individual managers of resource programs have some responsibility for the K-V program. For example, at the Washington Office, there are separate resource program managers for cultural resources, range, recreation, timber, watershed and air, and wildlife and fisheries. All managers are responsible for their share of the K-V program, and according to Forest Service policy, all these functional managers are to coordinate the management of the K-V program. Similar lines of resource management exist at the regional, forest, and district office levels. However, because of resource constraints, management of some functions may be combined.

²The Forest Service has 156 "proclaimed" national forests, which are the original forests designated by the Congress. The proclaimed forests are administered by 122 national forest administrative offices.

K-V Planning Is Closely Tied to the Timber Sale Process

Planning for K-V projects generally coincides with the multiyear timber sale process. In simple terms, the timber sale process can be described as consisting of six key steps: (1) identifying an individual sale area, (2) performing an environmental analysis, (3) determining a minimum sale price for the timber, (4) administering the bid process, (5) administering the timber harvest, and (6) closing out the sale. Beginning with the environmental analysis, K-V planning coincides with the sale activities. Appendix II provides more details on each of the six steps in the timber sale process and the K-V planning involved.

Once a preliminary timber sale area has been identified, an interdisciplinary team of Forest Service specialists (e.g., timber specialists, wildlife biologists, fish specialists, range staff, recreation staff, and soil scientists) prepares an environmental analysis of the preliminary sale area. The analysis, required by the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*) and Forest Service policy, addresses (1) the anticipated effects of timber harvesting on area resources such as wildlife, fish, and water and (2) the need to mitigate such effects. While the environmental analysis discusses the need for mitigation, it generally does not specify how mitigation will be accomplished.

During the environmental analysis, the interdisciplinary team gathers information for a sale area improvement plan, which is prepared for the timber sale contract. (See app. III for a sample sale area improvement plan.) This plan lists, in order of priority, all the projects needed to reforest the area; mitigate damage; and protect, improve, or otherwise enhance resources. Certain projects included in the plan are designated as "required": These projects include reforestation and the activities necessary to ensure the survival of the new stand of trees. Such projects include controlling damage to seedlings caused by animals, eliminating weeds and other noxious growth that compete with tree seedlings for light and soil, monitoring tree growth, and certifying that tree stands are "free to grow."

According to Forest Service policy, K-V projects must be discussed in the environmental analysis and must be appropriate; that is, they must reestablish, protect, and improve renewable resources in harvested areas. The K-V handbook lists numerous examples of projects that are appropriate for K-V funding, including preparing sites for planting and seeding, improving fish habitat, stabilizing stream banks, enhancing soil productivity, and constructing nest boxes for birds.

After completing the environmental analysis, Forest Service officials establish a minimum acceptable price for the timber. In doing so, they prepare two estimates for the timber's price: (1) an appraisal of the timber's value and (2) the estimated cost of completing the required K-V projects plus \$0.50 per thousand board feet of timber to be cut. The higher of the two prices becomes the minimum acceptable price for which the timber will be sold.

Once the Forest Service solicits bids, evaluates them, and awards the contract to the highest bidder, the timber harvest begins; it generally lasts from 1 to 5 years. Under Forest Service policy, as the harvest proceeds, the sale area improvement plan—listing all required and proposed projects—must be reviewed annually. The review determines whether the plan needs revision to reflect changes in the cost estimates, reordered priorities, or additions or deletions to the numbers of projects.

Finally, once the timber has been fully harvested, the Forest Service administratively closes the timber sale. The closeout is important to the K-V process because it is the last time that K-V projects and cost estimates may be revised. Once the sale has been closed, no more K-V funds may be collected.

Implementation of the K-V Plan May Begin During Timber Harvesting

Work on K-V projects other than reforestation may begin before the timber sale is closed. Generally, reforestation work begins after the timber is harvested. According to Forest Service policy, K-V projects should be completed within 5 years after the timber sale's closure, and required K-V projects must be funded from K-V collections. However, if the final collections from the sale are greater than what is needed to pay for the required projects, other projects listed in the sale area improvement plan may be funded from K-V collections. The projects selected are generally those that will rehabilitate the timber sale area or protect or improve nontimber resources, such as wildlife, in the area.

Over the past 5 fiscal years, the Forest Service has spent over \$1.1 billion on K-V projects. Of this amount, over \$485 million was spent on reforestation projects, and the remainder was spent on projects for improving existing timber stands, constructing or repairing wildlife habitat, or rebuilding recreation trails.

Forest Service's Actions Generally Corrected Previous Program Management Problems, but Additional Actions Are Needed

Since 1990, the Forest Service has taken several positive actions to resolve the problems with K-V program management reported by the Office of the Inspector General in the Department of Agriculture or by Forest Service headquarters. These problems ranged from not identifying K-V projects in the environmental analysis document to not establishing project priorities in the sale area improvement plan. Accordingly, corrective actions included providing staff with additional training, issuing guidance that clarified program policies, and increasing oversight and review activities. For the most part, the actions taken by the Forest Service have improved the management of the K-V program, but some problems remain.

Prior Studies Identified Many Problems With the Program

We reviewed the reports issued since 1990 by the Office of the Inspector General and the Forest Service on the K-V program, and in the eight districts visited, we reviewed files for all 50 timber sales identified by district officials as having been closed or substantially closed in fiscal year 1993 to determine if corrective actions had been implemented.

A 1990 report by the Inspector General,³ for example, found that the Forest Service's review and monitoring of the K-V program were insufficient. Among the problems cited were including inappropriate projects in sale area improvement plans and not scheduling timely or periodic program reviews by the Washington Office or a regional office.

In response to the Inspector General's report, the Forest Service increased its internal review process at two organizational levels. First, Washington Office officials now conduct a management review of different regions each year, with the goal of reviewing each of the nine regions every 3 years. Second, the regions have increased the frequency and the intensity of their reviews of the forest offices' activities.

Since 1990, Washington Office officials have conducted 11 internal reviews of K-V program management: Each region has been reviewed once and two regions have been reviewed twice. The reviewers examined the program activities of selected forest and district offices. The types of problems identified in the reviews generally were the following: (1) inappropriate projects were included in the sale area improvement plan, (2) K-V projects were not identified in the environmental analysis document, (3) the interdisciplinary team did not work together effectively, (4) required documentation was lacking in the sale area improvement

³Forest Service Analysis of Knutson-Vandenberg Act Fund Balances, Audit Report No. 08600-3-At (Mar. 1990).

plan, (5) project priorities were not established and identified in the sale area improvement plan, and (6) the sale area improvement plan was not reviewed annually or revised as necessary. Although the types and severity of the problems varied from region to region, problems in each category were found in five or more regions. All regions had inappropriate projects, such as reconstructing recreation trails, drilling wells to provide water for livestock, or fencing a horse pasture that belonged to the Forest Service.

According to the Forest Service, these problems resulted from a combination of unclear guidance and direction and a lack of general knowledge about the K-V program. Accordingly, the Forest Service

- issued a revised K-V handbook in September 1992 that clarified the types of projects that are appropriate, included an example of a sale area improvement plan, clarified what information must be included in the plan, and revised and strengthened the process for reviewing the sale area improvement plan at the forest office level and
- provided additional training in regional, forest, and district offices on the purpose and the legal limitations of the K-V program, the appropriate uses of K-V funds, and the way to document and support K-V projects.

Also, in October 1992 the Forest Service established a headquarters steering committee to recommend policy revisions and respond to questions from the field offices about K-V policy. This informal committee, which meets as needed, includes representatives from resource programs (e.g., those for timber management, range, wildlife and fisheries, recreation, and cultural resources) and from administrative programs (e.g., program development and budget, and fiscal and accounting services). The committee has recently discussed clarifying the use of K-V funds for construction and the appropriateness of using K-V funds to monitor the effects of timber sale activities on various resources.

Problems Have Generally Been Corrected, but a Few Remain

In the districts we visited and in our review of the files of the 50 timber sales closed or substantially closed in fiscal year 1993, we found that the Forest Service's corrective actions generally improved the management of the K-V program, but a few problems remain unresolved.

Management improvements were apparent in several areas. For example, for each of the 50 timber sales that we reviewed, an environmental analysis had been prepared. Additionally, each of the 567 K-V projects connected with the 50 sales that we reviewed appeared to be appropriate

for K-V funding. Furthermore, 293 of the projects were required and were given top priority for K-V funding.

In a few areas, however, problems with documentation remained. Of the 50 sale area improvement plans we reviewed, 15 plans listed projects that were not addressed in the environmental analysis of the sale, 21 plans lacked the required narrative support for the K-V projects, and 21 plans lacked documentation in the files showing that the sale area improvement plans had been reviewed annually as required by Forest Service policy. (Some plans were lacking in more than one of these areas.) The district ranger is ultimately responsible for ensuring that the (1) K-V projects are consistent with the environmental analysis, (2) sale area improvement plans are adequately reviewed and updated, and (3) projects are appropriately documented.

Project documentation is important not only as a management oversight tool but also as a training and quality assurance tool. According to the Comptroller General's Standards for Internal Controls in the Federal Government, documentation is necessary "if pertinent information is to maintain its relevance and value to management in controlling operations and making decisions." Furthermore, given the length of the process for planning and implementing K-V projects, together with staff turnover,⁴ documentation is needed to ensure that newer staff understand why projects are necessary and when updates were last accomplished. For example, one district official who had recently joined the district office expressed to us her frustration with the lack of documentation on K-V projects. According to this official, the lack of documentation hindered her understanding of the projects' status.

According to the K-V program official in the Washington Office, the 1992 revision to the K-V handbook and the increased training provided by regions have gone a long way toward resolving the problems with the K-V program. Additionally, this official indicated that seven of the nine regions (all but regions 4 and 5) have provided comprehensive training on the K-V program to their forest office and district staff. These regions, he noted, have not taken steps in 5 years to provide staff with comprehensive training in managing the K-V program but have merely included the information on K-V as a small portion of other training provided. Although the Washington Office encourages the regions to provide comprehensive training, Region 4 only included it as part of other Forest Service training

⁴In the fiscal year 1994 "buyout" of government employees to encourage them to retire or otherwise leave government service, the Forest Service lost more than 2,300 employees. Additional buyouts may occur in fiscal year 1995.

because, according to a regional official, he did not recognize that the staff wanted extensive training in the program.

Conclusions

While the Forest Service has taken certain positive actions over the past few years to resolve previously identified problems with program management, some problems remain. We believe that the Forest Service's actions have improved the management of the program, but more could be done. The complexity and the length of the K-V planning and implementation process make it imperative that the need for and the status of K-V projects be thoroughly documented in the files and that K-V program staff be well-versed in program requirements. In this regard, the Forest Service—through the responsible officials in regional, forest, and district offices—needs to ensure that sale area improvement plans are adequately documented and that field staff are given the necessary training to properly implement and monitor the K-V program.

Recommendations

We recommend that the Secretary of Agriculture, to further improve management of the K-V program, direct the Chief of the Forest Service to require district rangers to verify, before approving and signing the original sale area improvement plans and their revisions, that

- K-V projects listed in the sale area improvement plans are clearly related to needs for mitigation and to enhancement measures mentioned in the environmental analyses,
- the sale area improvement plans contain the required narrative support for planned K-V projects, and
- documentation (e.g., initials and dates) shows that the sale area improvement plans have been annually reviewed and revised as appropriate.

We further recommend that the Secretary of Agriculture direct the Chief of the Forest Service to provide appropriate training to forest and district office staff involved in the K-V program in the Intermountain Region (Region 4) and the Pacific Southwest Region (Region 5).

Agency Comments

We discussed the facts, conclusions, and recommendations in this report with the Forest Service's Washington Office Director and other staff, including the head of the K-V program from the Timber Management Staff, and the Systems Accountant from the Fiscal and Accounting Services

Staff. These officials said that the report accurately described the operations of the K-V program. They provided some technical clarifications that we incorporated as appropriate. Regarding the recommendations, these officials stated that on the basis of the information developed, all the recommendations were warranted and that they would begin taking corrective action. In our subsequent discussions with a Region 4 representative, the official indicated that training will be scheduled in mid-fiscal year 1995 to correct the training problem we identified.

In conducting our review, we examined pertinent legislation and Forest Service policies and procedures for managing the K-V program. We also interviewed Forest Service officials at all organizational levels—in the Washington Office and in regional, forest, and district offices. In the eight districts we visited, we reviewed district offices' files on all 50 timber sales identified by district officials as having been closed in fiscal year 1993 or being near closure. We also reviewed reports by the Office of the Inspector General in the Department of Agriculture and Forest Service reports on the K-V program issued since fiscal year 1990. Appendix IV contains details of our scope and methodology.

We performed our review from August 1993 through June 1994 in accordance with generally accepted government auditing standards.

We are sending copies of this report to the Secretary of Agriculture, the Chief of the Forest Service, appropriate congressional committees, and other interested parties. We will also make copies available to others on request.

This work was performed under the direction of James K. Meissner, Associate Director for Timber, who may be reached at (206) 287-4810. Other major contributors to this report are listed in appendix V.

Sincerely yours,

A handwritten signature in black ink that reads "James Duffus III". The signature is written in a cursive style with a large, sweeping initial "J" and a distinct "III" at the end.

James Duffus III
Director, Natural Resources
Management Issues

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Abbreviations

GAO	General Accounting Office
GIS	Geographic Information System
K-V	Knutson-Vandenberg
MBF	thousand board feet
SAI	Sale Area Improvement and K-V Collection Plan
TSI	timber stand improvement

Timber Receipts and K-V Receipts and Expenditures, Fiscal Years 1989-93

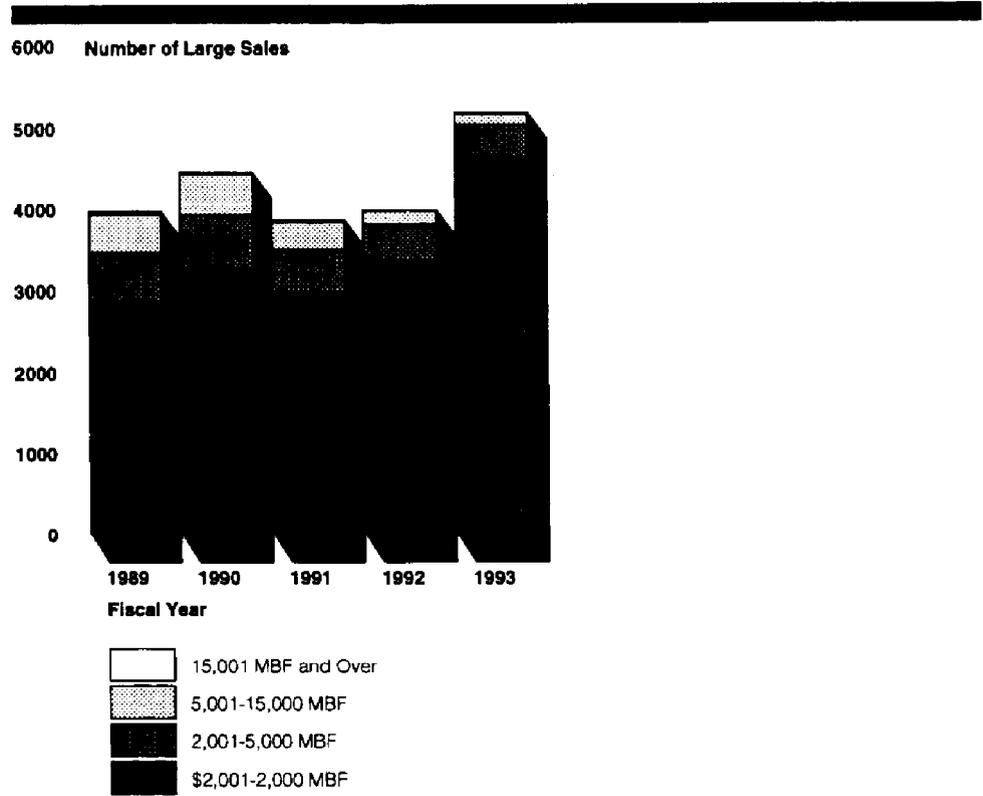
During fiscal years 1989-93, the Forest Service awarded over 1.3 million timber sales, not including sales of special forest products such as Christmas trees. During the same period, the Forest Service received approximately \$5.5 billion for all timber sales, including almost \$1.2 billion for the K-V fund. Regional K-V expenditures over the 5-year period totaled over \$1.1 billion. In fiscal year 1993, reforestation constituted 66 percent of the K-V expenditures.

Number of Timber Sales

Of the 1.3 million timber sales awarded by the Forest Service in fiscal years 1989-93, almost 21,500 were large sales and the rest were small sales. Large sales are those that (1) will raise over \$2,000 or (2) contain 2 million board feet or more. Small sales, on the other hand, generally yield \$2,000 or less. Figure I.1 illustrates the change in the number of large timber sales for fiscal years 1989-93.

**Appendix I
Timber Receipts and K-V Receipts and
Expenditures, Fiscal Years 1989-93**

**Figure I.1: Number of Large Timber
Sales, Fiscal Years 1989-93**



Note 1: MBF=thousand board feet.

Note 2: The Forest Service uses two criteria to create the smallest-size class shown on the chart: \$2,001-2,000 MBF refers to timber sales of \$2,000 or more in value or timber sales of 2 million board feet or less in volume.

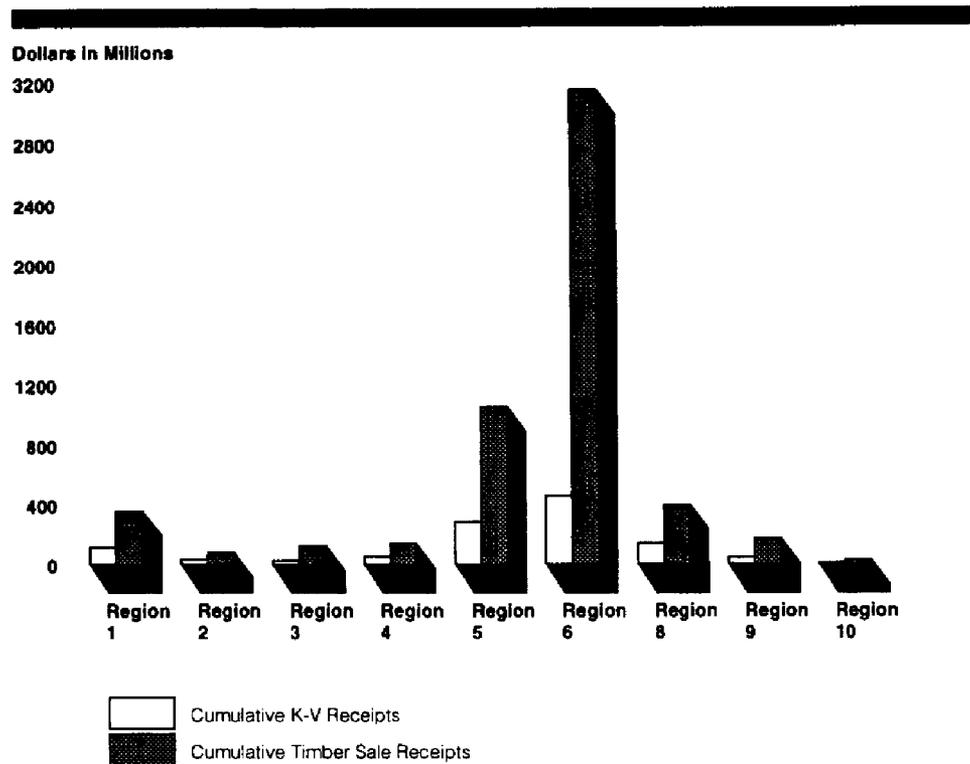
Source: Forest Service.

**Timber Sales and K-V
Receipts**

During fiscal years 1989-93, the Forest Service's nine regional offices received approximately \$5.5 billion for all timber sales, including almost \$1.2 billion for K-V projects. Figure I.2 shows the distribution of receipts from timber sales and the K-V fund among the regions.

**Appendix I
Timber Receipts and K-V Receipts and
Expenditures, Fiscal Years 1989-93**

Figure I.2: Cumulative Timber and K-V Receipts by Region, Fiscal Years 1989-93



Note: The Forest Service does not have a Region 7.

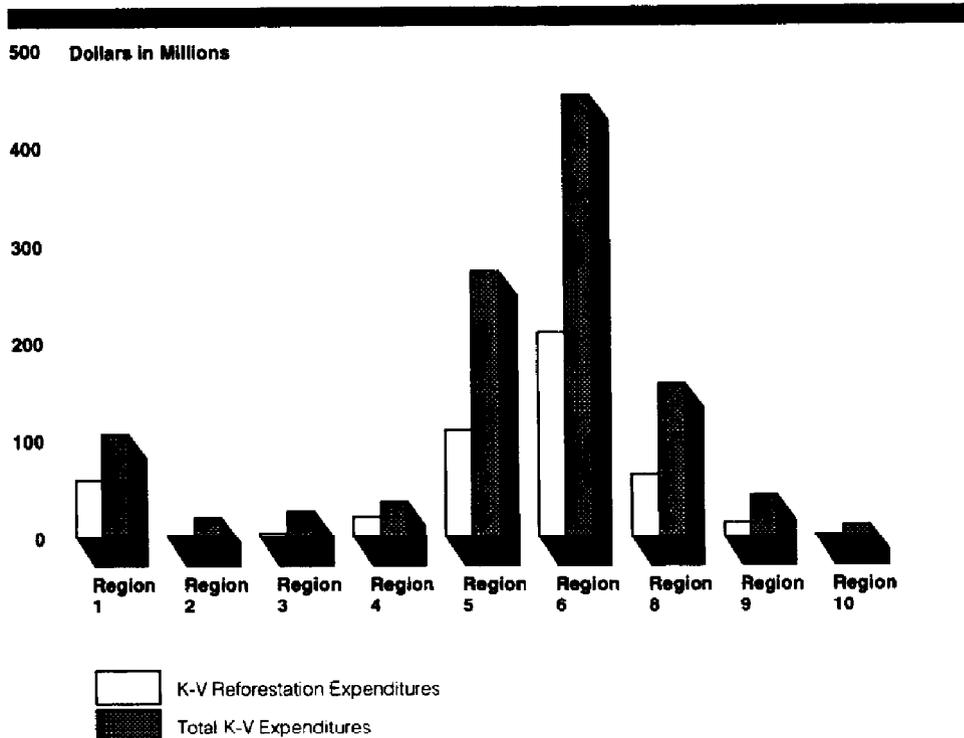
Source: Forest Service.

Regional K-V Expenditures

Cumulative expenditures from the K-V fund for fiscal years 1989-93 amounted to over \$1.1 billion for the nine regions. Figure I.3 shows how much each region spent in K-V funds and how much was spent solely for reforestation. In regions 1, 4, 5, 6, and 8, reforestation expenditures equaled approximately 40 to 60 percent of the total K-V expenditures over the 5 years.

**Appendix I
Timber Receipts and K-V Receipts and
Expenditures, Fiscal Years 1989-93**

**Figure I.3: Cumulative K-V and K-V
Reforestation Expenditures by Region,
Fiscal Years 1989-93**



Note 1: The Forest Service does not have a Region 7.

Note 2: Expenditures do not include indirect cost elements.

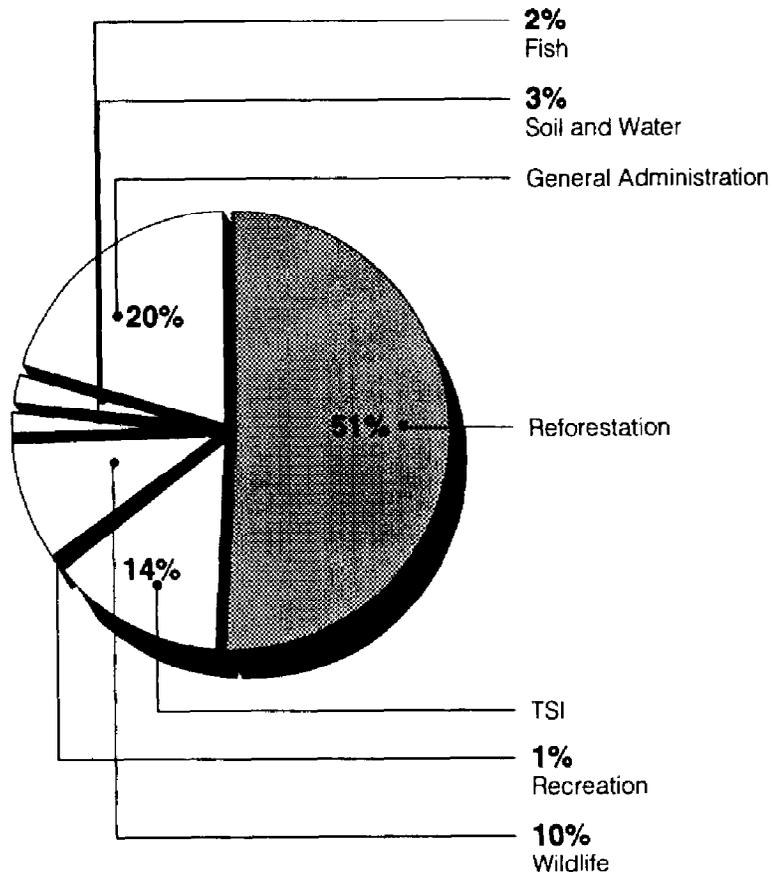
Source: Forest Service.

National K-V Expenditures

Nationwide, in fiscal year 1993, expenditures for reforestation consumed 51 percent of total K-V expenditures. Timber-related expenditures—including reforestation and timber stand improvement—consumed 65 percent of K-V funds. The next largest use of K-V funds was general administration expenses (20 percent). Figure I.4 compares the percentage of expenditures for reforestation with total K-V expenditures for fiscal year 1993.

**Appendix I
Timber Receipts and K-V Receipts and
Expenditures, Fiscal Years 1989-93**

**Figure I.4: K-V Expenditures by Type,
Fiscal Year 1993**



Note 1: TSI = timber stand improvement.

Note 2: Percentages do not add to 100 because of rounding.

Source: Forest Service's Fiscal and Accounting Services.

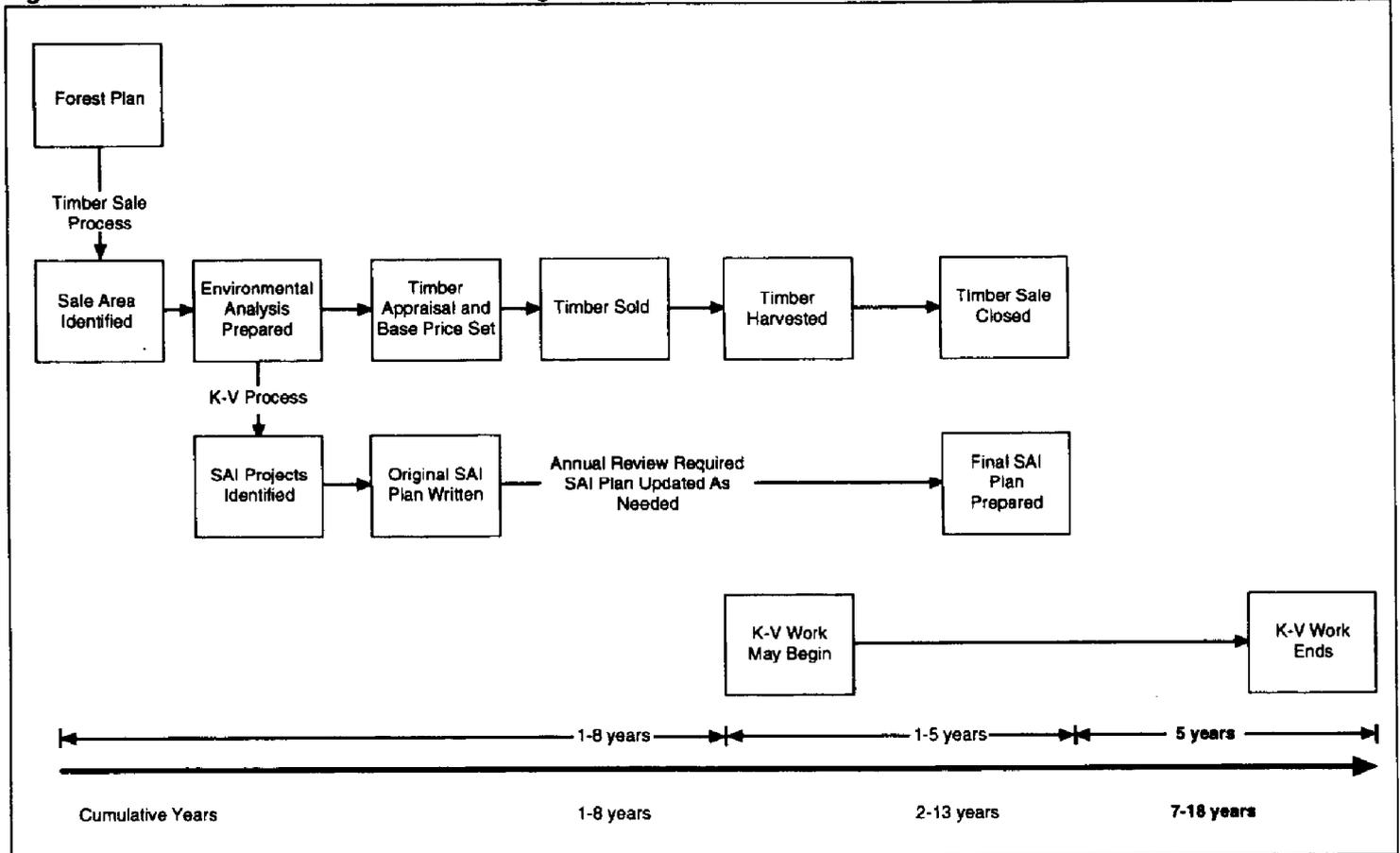
Timber Management and K-V Planning

One facet of timber management involves planning for and implementing timber sales, of which planning for K-V projects is an integral part. The principal guiding document for timber management is the forest plan, which is prepared for each forest. These plans provide long-term guidance for planning timber sales by identifying general sale areas that may be harvested over a decade or more. Forest Service officials use this general guidance to identify specific timber sale areas, thus starting the timber sale process.

The timber sale process—which may take over 10 years from the time of initial sale planning through harvest—consists of six key steps: (1) identifying the individual sale area, (2) performing an environmental analysis, (3) determining a minimum sale price for the timber, (4) administering the bid process, (5) administering the timber harvest, and (6) closing out the sale. Many Forest Service officials at the forest and district offices are involved in this process.

Figure II.1 illustrates these steps, adding the initial step of preparing the forest plan. In addition, the time line shows the point at which the K-V process is integrated with the timber sale process and the range of years taken for planning and implementing both processes. Individual sales may be longer or shorter by a number of years. Each step is described in more detail below.

Figure II.1: Timber Sale Process and K-V Planning



Forest Plan Prepared

Under the Forest and Rangeland Renewable Resources Planning Act of 1974 (16 U.S.C. 1600-1614), as amended by the 1976 National Forest Management Act (16 U.S.C. 1600 *et seq.*), each forest manages its natural resources in accordance with a forest plan covering a period of up to 15 years. Forest plans set standards for managing timber, wildlife, water quality, and other forest conditions. All activities affecting the forest must comply with the forest plan, and the plans are subject to public comment and appeal.

Forest plans must comply with various laws, such as the Endangered Species Act of 1973 (16 U.S.C. sections 1531-1544). Forest plans comply with this act by setting standards for protecting animals and plants in the forest. For example, the Targhee National Forest, adjacent to Yellowstone National Park, has set standards to provide grizzly bears with habitat and

cover. Similarly, the Siuslaw National Forest in the Pacific Northwest must identify means of preserving habitat for the northern spotted owl and the Oregon silverspot butterfly. Other critical acts that must be considered in forest plans include the Bankhead-Jones Farm Tenant Act of 1937 (7 U.S.C. 1010-1012), the Multiple Use-Sustained Yield Act of 1960 (16 U.S.C. 528-531), the National Environmental Policy Act of 1969 (42 U.S.C. 4321-4347), and the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701-1782).

Sale Area Identified

The first step in the timber sale process, identifying a preliminary timber sale area, flows from the forest plan. Forest plans identify general areas suitable for timber sales and may schedule, by year, when timber sales on these lands may take place. From these general areas, interdisciplinary teams of Forest Service specialists (e.g., timber specialists, wildlife biologists, fish specialists, and range staff) identify more precisely defined individual sale areas. These specialists are usually from the forest or district offices.

In identifying individual sale areas, the interdisciplinary team evaluates factors such as terrain; road and stream locations; and the type, maturity, and condition of the trees. The team then establishes the type of sale to be held: either a sale of predominantly healthy trees or a salvage sale of predominantly damaged, diseased, or dead trees. The team defines the final boundary of the sale area after an environmental analysis has been prepared. The boundary is based on geographically identifiable landmarks, such as streams, roads, and ridges.

Environmental Analysis Prepared

Once a preliminary sale area has been identified, the interdisciplinary team begins the second step of the process: preparing an environmental analysis of the sale area. This analysis addresses the anticipated effects of timber cutting on the area's nontimber resources—such as wildlife and water—and the need to mitigate such effects. Before preparing the environmental analysis, the interdisciplinary team evaluates tree and soil conditions, terrain, and other factors that may affect the sale. In addition, the officials search for places that may provide opportunities to improve the area's resources, by, for example, creating wildlife habitat (e.g., meadows and fish structures) and places that may be disturbed by cutting. Each opportunity to improve resources or mitigate damage should be addressed in the environmental analysis for the area.

In conjunction with preparing the environmental analysis, certain members of the interdisciplinary team—those responsible for renewable resources—identify and negotiate projects for a sale area improvement plan. The plan is prepared after the environmental analysis is completed, as part of the timber sale contract. This plan lists, in order of priority, all the projects needed to reforest the area, mitigate damage, and protect or improve resources. The plan also includes the estimated cost of the projects. (See app. III for a sample plan.)

Timber Appraised and Base Price Set

In step three, the minimum acceptable price for the timber is determined. Generally, the district's pre-sale officer prepares an appraisal of the timber's value and compares this with a base price that depends, in part, on the cost of the K-V projects listed on the sale area improvement plan. The minimum acceptable price for which the timber will be sold is the higher of the two values.

Various laws and regulations require the Forest Service to sell timber for a fair market value. The value varies according to the species of tree to be cut (e.g., lodgepole pine, ponderosa pine, Douglas fir), differences in the terrain underlying the trees, the quality of the timber and whether the trees are healthy or damaged, and the distance from the sale area to the nearest timber mill. In general, the timber appraisal results in a price to be paid per thousand board feet of the timber. (A board foot, a standard measure of timber, equals the amount of wood in an unfinished board 1 inch thick, 12 inches long, and 12 inches wide.) The timber value is based on an estimate of the number of thousand board feet available in the sale area multiplied by the price per thousand board feet.

The member of the interdisciplinary team primarily responsible for preparing the sale area improvement plan, usually a district timber official, determines a base price for a sale area. The base price is the cost of the required K-V projects added to a standard price of \$0.50 per thousand board feet for the timber harvested. According to Forest Service policy, the timber sale price must be sufficient to cover the estimated costs of required reforestation projects listed on the sale area improvement plan. Required projects include reforestation of cutover areas and other activities necessary to ensure the survival of the young trees, including controlling animal damage to young trees and destroying competing vegetation. To determine the base price, the timber official calculates the total cost of accomplishing the required projects, then adds \$0.50 per thousand board feet of timber cut. The \$0.50 per thousand board feet is

standard for all types of tree and is intended to provide revenue to support other Forest Service activities.

Timber Sold

The fourth step, administering the bid process, consists of advertising the sale, accepting and evaluating bids, and awarding the contract to the highest bidder. The minimum acceptable price becomes the advertised price for the sale. A member of the forest or district office's Resource Group (which carries out an administrative function) prepares and places a sale advertisement with local newspapers.

Either the forest office's timber sale contracting officer or a forest or district office timber management official manages the bidding process. Bidding is designated as either sealed or oral. In sealed bidding, interested parties submit bids in writing, and the responsible bidder with the highest bid will be awarded the contract. The highest bid must be equal to or greater than the advertised price. In oral bidding, interested parties first submit bids in writing. Any party with an acceptable bid—that is, a bid equal to or greater than the advertised price—is allowed to make oral bids against those of other accepted bidders. The party that makes the highest oral bid is awarded the contract. Under the terms of federal timber sale contracts, purchasers agree to harvest the timber within a specific period and to take other actions, such as building roads and clearing debris after the harvest.

Timber Harvest Administered

The fifth step, harvesting the timber, begins once the sale contract is in effect. For individual sales, timber harvesting generally lasts for 1 to 5 years or longer. During the harvest, the district's timber sale administrator regularly inspects the sale area to verify that the timber purchaser is carrying out the contract terms. For example, the purchaser should cut only designated trees and must take appropriate precautions to prevent fire.

Throughout the harvest, the purchaser makes payments for the timber. A portion of these payments is allocated to the K-V fund to pay for the sale area improvement projects. These projects may start as soon as timber is harvested.

Timber Sale Closed

Finally, as the sixth step, the sale is administratively closed. The closeout is important to the K-V process because it is the last time that K-V projects and cost estimates may be revised.

Closing the sale involves (1) making a final inspection of the timber sale area, (2) verifying that the timber volume is updated and complete and that payment for the timber has been made, (3) ensuring that the appropriate paperwork is accurate and complete, and (4) notifying the purchaser that the purchaser's liability for the area is finished. Once the sale is closed, no more K-V funds may be collected and no more K-V projects may be added to the final sale area improvement plan.

Sale Area Improvement and K-V Collection Plan

The Forest Service uses the Sale Area Improvement and K-V Collection Plan (SAI plan) to document the projects necessary to reforest a harvested sale area and to protect and improve renewable resources. Forest Service policy requires that a SAI plan be completed for any sale area. This appendix provides a sample sale area improvement plan, explains the information that must be included, and describes how district officials use the plan to document financing for K-V projects.

Sample SAI Plan

Figure III.1 is a sample of the standard Sale Area Improvement and K-V Collection Plan, containing the 20 items that Forest Service officials use when planning the timber sale and related sale area improvement projects. Table III.1, following the figure, describes each item on the plan.

Appendix III
Sale Area Improvement and K-V Collection
Plan

Figure III.1: Sample Sale Area Improvement and K-V Collection Plan

USDA-Forest Service				FS 2400-50 (2/92)			
SALE AREA IMPROVEMENT AND K-V COLLECTION PLAN				(1) Forest	(2) District / Unit		
				(3) Sale Name	(4) Contract Date		
(5) COMPARTMENTS or GIS Reference	(6) Type of Plan [] Original [] Revision #	(7) Purchaser		(8) Contract Number			
List of Eligible Projects (in priority order) (9)	Work Activity (10)	Units of Work (11)	Cost Per Unit (12)	Cost of Eligible Projects		K-V Funded Projects	
				No. of Units (13a)	Cost (13b)	No. of Units (14a)	Cost (14b)
A. Required Reforest.							
1. Artificial Regen	ET24	AC	\$338	140	\$ 47320	140	\$ 47320
2. Natural Regen	ET24	AC	113	106	11978	106	11978
Total Required Ref					\$ 59298		
B. Non-Required K-V							
1. Fish Enhancement	CP221	ST	\$1099	10	10990	10	10990
2. Riparian Planting	CW222	AC	425	6	2550	6	2550
3. Thin and Clean	ET25	AC	242	76	18392	76	18392
4. Water Developments	DN221	ST	1599	3	4797	3	4797
5. Noxious Weed Mgt	DN24	AC	1132	2	2264	1	1132
6. Wildlife Tree Sign	CW222	AC	5.49	350	1922		
7. Road Inactivation	FW22	M1	338	2	676		
(15) Total Eligible Work Funded				XXXXXX	XXXXXXXXXX	XXXXXXXXXX	\$ 97159
(16) Stumpage Available for K-V financing							\$ 97500
(17) Remarks:							
(18) PREPARED BY: (Signature)				Title:		Date	
(19) RECOMMENDED BY: (Signature)				Title:		Date	
(20) APPROVED BY: (Signature)				Title:		Date	

**Appendix III
Sale Area Improvement and K-V Collection
Plan**

Table III.1: Description of items on the Sample SAI Plan

Field	Title	Purpose
1	Forest	The name of the proclaimed national forest in which the timber sale is located.
2	District/unit	The name of the district or unit in which the timber sale is located.
3	Sale name	The name of the timber sale.
4	Contract date	The date that the timber sale contract is signed and that the timber is considered "sold."
5	Compartments or GIS [Geographic Information System] reference	A geographic reference for the timber sale. For example, a compartment is a geographic area composed of many tree stands and specifically numbered in the forest plan.
6	Type of plan	An indication of whether the SAI plan is the original plan or a revision.
7	Purchaser	The name of the timber purchaser.
8	Contract number	The timber sale contract number.
9	List of eligible projects	A list, by priority, of the projects that the interdisciplinary team recommends and the district ranger approves as eligible for K-V funding. According to Forest Service policy, required projects (e.g., reforestation or animal damage control) should always be listed as the highest priorities.
10	Work activity	An accounting code used to register expenses for Forest Service work. For example, accounting code ET24 is the Forest Service's work activity code for reforestation. Another example is ET25, the work activity code for timber stand improvement.
11	Units of work	A description of how the work will be measured; for example, the relevant unit for reforestation work is an acre (AC), fish enhancement is listed by structure (ST), and road inactivation is measured by mile (Mi).
12	Cost per unit	The estimated cost per project unit (e.g., acre, mile, or structure), as projected by the district responsible for the project.
13a	Cost of eligible projects—no. of units	The total units of work needed to complete the project listed in field 9.
13b	Cost of eligible projects—cost	The estimated total cost of the indicated project. The cost is derived by multiplying the project's unit costs in field 12 by the eligible acres of work in field 13a.

(continued)

**Appendix III
Sale Area Improvement and K-V Collection
Plan**

Field	Title	Purpose
14a	K-V funded projects—no. of units	The number of units for the indicated project that may be funded with K-V dollars collected from the sale. This section is filled in after the timber sale is awarded; the amount that will be available for K-V funding is known from field 16. The units of work in field 14a may be less than those shown in field 13a.
14b	K-V funded projects—cost	The amount that K-V dollars will fund for each project. The cost is derived by multiplying the unit cost in field 12 by the number of units that may be funded with K-V funds in field 14a. The total cost of work in field 14b may be less than that shown in field 13b. This would happen if not enough K-V funds were available from the sale to completely fund every project.
15	Total eligible work funded	The sum of all project costs in column 14b; this amount equals the total cost of all K-V-funded SAI projects.
16	Stumpage available for K-V financing	The estimated amount of cash deposits, to be paid by the purchaser, that is available to fund K-V projects. This value is the adjusted contract sale price. This field must be completed before fields 14a and 14b are completed.
17	Remarks	Space for any further information.
18	Prepared by	The name and the signature of the person who prepared the SAI plan.
19	Recommended by	The name and the signature of the district ranger or the leader of the interdisciplinary team for the sale.
20	Approved by	The signature of the official authorized to approve the environmental analysis documents for the timber sale. This may be the forest supervisor or the district ranger, for example.

Use of the SAI Plan

The districts use the SAI form to list individual projects for improving the timber sale area and K-V project funding. The following describes how the district staff use the form to document improvement projects for the sale area; the estimated project costs; and, finally, the level of K-V funding for the projects in the plan.

Sale area improvement projects and K-V project funding are documented on individual forms like the sample in figure III.1 (regional variations are allowed). On the form, the Forest Service provides information on each

timber sale and purchaser according to the contract and the geographic location (fields 1-5, 7 and 8). If changes occur in the timber sale, the SAI plan may be revised to document such changes (field 6).

The SAI plan records the types of projects (field 9) and the sizes of the projects (field 13a) that a district expects to accomplish. For example, the sample SAI plan lists two required reforestation projects (artificial regen[eration] and natural regen[eration]) and seven nonrequired projects (fish enhancement, riparian planting, thin and clean, water developments, noxious weed management, wildlife tree sign, and road inactivation).

The districts are not limited in the number of projects that may be listed on the document as eligible for K-V funding, although all listed projects must be appropriate for K-V funding. Forest Service guidance provides a list of projects appropriate for K-V funding. Districts may plan for projects that are not on this list but should first verify with staff in the Washington Office or the forest or regional offices that such projects are eligible for K-V funding. The following list is a sample of appropriate projects:

- construct birds' nest boxes or tree cavities, guzzlers, and water catchments;
- thin trees to enhance growth;
- prescribe burn to enhance wildlife habitat and rangeland ecosystems;
- install gates, signs, and traffic control barriers;
- conduct administrative studies;
- plant riparian (along rivers and streams) vegetation;
- respread top soil;
- incorporate organic matter into soils to maintain fertility;
- pull back side cast from old roads to reduce landslide potential within the sale area;
- remove barriers to fish passage and stabilize stream banks;
- provide interpretive signs or other media to help the public understand management activities;
- manipulate vegetation to improve diversity;
- restore barriers to livestock;
- construct waterbars and/or close roads associated with a K-V project;
- set up free firewood-gathering areas;
- rip or till compacted soils;
- control stream temperature and provide cover with large woody debris;
- increase effectiveness of filter strips with woody obstructions using logging slash;

- control public, wildlife, and livestock use that threatens plantations or other resources;
- obliterate and restore productivity on unneeded roads and travelways not used by the purchaser;
- landscape gullies that threaten long-term productivity at the site;
- improve the visual quality along roads and trails;
- use burning and other techniques to enhance production of wild berries;
- establish dispersed camping sites within the boundary of the sale area; and
- remove preexisting slash, such as root wads, to enhance recreation and aesthetics.

The district uses the SAI plan to indicate which of the eligible projects received K-V funding. Merely listing a project as eligible for K-V funding on the sale area document does not guarantee that K-V funding will be received for the project. K-V funding for a project in a sale area hinges on the amount of money available from the sale to fund improvement projects (field 16) and the cost estimates for the projects (fields 13a and b). If the total amount of sale money available to fund projects is greater than the proposed project costs in the sale area improvement plan, all the projects in that plan may be funded with K-V money. However, if the money available is less than the proposed project costs in the plan, projects are funded by priority until the money runs out.

For example, the sample SAI plan shows two projects that did not receive K-V funding (wildlife tree sign and road inactivation) and one project that received only partial funding (noxious weed management) because the amount of K-V money available from the sale was not enough to fund all the eligible projects. In the sample plan, the amount of eligible work funded was \$97,159 (field 15), and the amount of money available to fund K-V work was \$97,500 (field 16). Thus, the amount of K-V money remaining to fund projects was \$341. Given the individual project costs, this was not enough to fund the last acre of noxious weed management—which costs \$1,132 per acre to complete. Nor was the amount sufficient to entirely fund the last two projects.

Objectives, Scope, and Methodology

The Chairman, Subcommittee on Public Lands, National Parks and Forests, Senate Committee on Energy and Natural Resources, requested that we review the Forest Service's management of the Knutson-Vandenberg (K-V) fund. We agreed to focus on determining (1) how the Forest Service plans for and implements K-V projects and (2) what changes the Forest Service has made in response to previous reviews of the K-V program.

Although some of our work was conducted at the Forest Service's Washington Office (headquarters), most of our work was performed at three regional offices, five forest offices, and eight district offices. We chose the regional offices—the Rocky Mountain Region (Region 2), the Intermountain Region (Region 4), and the Pacific Northwest Region (Region 6)—on the basis of the size of each region's timber receipts for fiscal year 1991; Region 6 (Portland, Oregon) had the highest level of receipts, and Regions 2 (Lakewood, Colorado) and 4 (Ogden, Utah) had low levels of receipts.

The forest offices reviewed were chosen for (1) the size of the fiscal year 1991 K-V receipts within their regions, (2) their geographic dispersion, and (3) whether the forests had been subject to management reviews by the Washington Office. On the basis of these criteria, we reviewed K-V programs for the following forests: the Boise Forest (Boise, Idaho); the Medicine Bow Forest (Laramie, Wyoming); the Ochoco Forest (Prineville, Oregon); the Siuslaw Forest (Corvallis, Oregon); and the Targhee Forest (St. Anthony, Idaho).

We reviewed district offices that had closed sales in fiscal year 1993 or had sales ready for closure. The district offices selected were the Ashton District Office (Ashton, Idaho); the Big Summit District Office (Prineville, Oregon); the Emmett District Office (Emmett, Idaho); the Hebo District Office (Hebo, Oregon); the Idaho City District Office (Idaho City, Idaho); the Island Park District Office (Island Park, Idaho); the Mapleton District Office (Mapleton, Oregon); and the Prineville District Office (Prineville, Oregon).

At all levels of the Forest Service's organization—Washington Office and regional, forest, and district offices—we interviewed officials familiar with the K-V program. These included resource program managers (e.g., recreation, timber, and wildlife managers); finance and budget officials; and officials responsible for maintaining information related to the K-V program in various automated systems. We also reviewed documents

concerning management of the K-V fund, such as Forest Service management reviews, K-V program policy and guidance, and timber sale accounting reports. Additionally, we reviewed the legislation that had established the K-V fund and reports by the Department of Agriculture's Office of the Inspector General assessing the K-V program.

Finally, at each district office, we reviewed files for a total of 50 timber sales for documentation related to the K-V program, such as environmental analyses and sale area improvement plans. The sales reviewed either were closed in fiscal year 1993 or were ready for closure. We chose to review these sales because the related sale area improvement plans should have been prepared using criteria in the Forest Service's most recent K-V handbook, which became effective a week before the beginning of fiscal year 1993.

For each sale, we collected the sale area improvement plan and subsequent revisions and evaluated them to determine (1) whether the need for the listed K-V projects was discussed in the environmental analysis for the sale; (2) whether the listed K-V projects were appropriate for K-V funding; (3) whether the required K-V projects were listed first; (4) whether the plan included a narrative attachment describing the K-V projects and their cost; and (5) whether the plan had been reviewed within a year of the sale's closure or, for sales not closed, whether the plan had been reviewed in the last year. When we noted discrepancies during our file review, we clarified the issues with responsible officials.

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Glossary

Animal Damage	Physical damage to forest tree seed, seedlings, and young trees as a result of seed foraging, browsing, cutting, rubbing, or trampling by mammals and birds.
Base Price	The cost of the sale's required K-V projects added to a standard price of \$0.50 per thousand board feet for timber harvested. In sales with a low timber value, the sale's base price may become the minimum acceptable price for the timber.
Board Foot	A standard timber measurement that equals the amount of wood in an unfinished board 1 inch thick, 12 inches long, and 12 inches wide.
Cultural Resource	Any definite location of past human activity identifiable through a field survey, historical documentation, or oral evidence. This includes archaeological or architectural sites, structures, or places, and places of traditional cultural or religious importance to specified groups whether or not represented by physical remains.
Free to Grow	The time when trees no longer have growth restraints.
Geographic Information System	A computer system capable of storing and manipulating mapped data.
Habitat	The place where a plant or an animal naturally lives and grows.
Interdisciplinary Team	A group of persons with varying areas of specialty assembled to solve a problem or perform a task. The team is assembled when no one scientific discipline is sufficiently broad to adequately solve complex resource problems.
Mature Stand	A mappable group of trees for which the annual net rate of growth has peaked. Mature stands are generally more than 80 years old and less than 200 years old.

Minimum Acceptable Price	The minimum acceptable price for a timber sale is the greater of the sale's base price or the timber's appraised value.
Mitigation	Practices intended to reduce the impact of certain management activities, including (1) avoiding the impact altogether by not taking a certain action; (2) minimizing the impact by limiting the degree or magnitude of the action; (3) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (4) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and (5) compensating for the impact by replacing or providing substitute resources or environments.
Reforestation	The renewal of forest cover by natural regeneration or by planting or seeding new trees where timber harvests or natural disasters have removed or destroyed existing stands.
Regeneration	The act of establishing young trees naturally or artificially.
Renewable Resources	Resources that can be used indefinitely if the use rate does not exceed the ability to renew the supply. Examples of such resources are timber, outdoor recreation, and wildlife.
Stumpage	The value of standing timber. When stumpage is recorded on a sale area improvement plan, it is the amount of timber sale proceeds available for funding K-V projects.
Timber Stand	A group of trees that occupies a specific area and is sufficiently uniform in species, age, and condition as to be distinguishable from the forest or other nearby growth.
Timber Stand Improvement	Various measures aimed at improving the growing conditions for a timber stand, such as thinning, pruning, burning, weeding, or poisoning unwanted trees.

Glossary

Watershed

A land area from which all surface water drains to a common point, such as a stream. Watersheds can range from a few tens of acres to many thousands of acres.

Wildlife Cover

Any vegetation used by wildlife for security or for escaping from danger. This cover is also known as hiding cover.

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